



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/549,635

09/20/2005

Albertus Cornelis Den Brinker

NL 030284

6180

24737

7590

12/31/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

BORSETTI, GREG

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

12/31/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,635	Applicant(s) DEN BRINKER ET AL.	
	Examiner GREG A. BORSETTI	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 12-17 is/are rejected.
- 7) ☒ Claim(s) 8-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/23/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-17 are pending.

Information Disclosure Statement

2. The Information Disclosure Statement (IDS) submitted on 2/23/2007 is in compliance with the provisions of 37 CFR 1.97.
 - a. Examiner notes that NPL document "Advances in Parametric Coding for High-Quality Audio" by Schuijers et al. was received by the Office but was not noted in the IDS filed 2/23/2007. The examiner has listed it in the '892 form.

Drawings

3. The drawings filed on 9/20/2005 are not accepted by the examiner. The drawings are objected to because the drawings do not have verbal labels, only numbers and representations. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

Art Unit: 2626

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 12 is objected to because of the following informalities: Claim 12 recites "wherein when the transformation parameters has been generated..." This should be changed to "wherein when the transformation parameters have been generated..."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3-5 recites the limitation "generating the transformation parameters comprises". There is insufficient antecedent basis for this limitation in the claim. The generating step is recited in claim 2, therefore claims 3-5 will be interpreted as being depending on claim 2.

6. Claims 8, and 11 recite the limitation "attenuating the second signal until the energy...." There is insufficient antecedent basis for this limitation in the claim because

Art Unit: 2626

the second signal has not been previously identified. For the purposes of examination, the “second signal: will be interpreted as the “first signal”.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claim(s) 1 and 7 is/are rejected under 35 USC 101 for being nonstatutory. Under the most recent interpretation of the Interim Guidelines regarding 35 U.S.C.101, a method claim must (1) be tied to another statutory class or (2) transform underlying subject matter to a different state or thing. If no transformation occurs, the claim(s) should positively recite the other statutory class to which it is tied to qualify as a statutory process under 35 U.S.C. 101. As for guidance to areas of statutory subject matter, see 35 U.S.C. 101 Interim Guidelines (with emphasis of the Clarification of “processes” under 35 USC 101); As an example, the claim(s) could identify the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed.

8. Claim 15 is rejected under 35 USC 101 for being nonstatutory. A “data signal” does not fall within one of the enumerated statutory categories under 35 USC 101 (machine, process, manufacture, or composition of matter).

Art Unit: 2626

9. Claim 16 is also non-statutory under the most recent interpretation of the Interim Guidelines regarding 35 U.S.C.101 because although this claim is toward a computer readable medium, as claimed, does not define any structural and functional interrelationship between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized (Warmerdam, 33 F.3d at 1361,31 USPQ2d at 1760; Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035).The interrelationships between the computer readable medium, and the data are not positively claimed (i.e. a storage of the data is necessary).

10. Claims 1, 7, 13, and 14 - 17 are further rejected under 35 USC 101 because they do not provide a useful, tangible, and concrete result to a user as is required by 35 USC 101. The independent claims simply encode the signal(s) without outputting them and making the encoding useful to a user. Claims 15-16 claim mediums defining what is recorded by the encoding methods. This also provides no output that is useful to a user.

11. Claims 13, 14, and 17 are further rejected under 35 USC 101 because they may be read as software, and thus non-statutory, embodiments. Specification, Page 5, lines 24-30, states "the described features may be implemented by hardwired circuitry instead of software or in combination with software." When treated as a whole, claims 13, 14, and 17 are more toward a non-statutory embodiment and not necessarily a hardware embodiment.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-2, 6-7, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable by Faller et al. (NPL document "Binaural Cue Coding Applied to Stereo and Multi-Channel Audio Compression" hereinafter Faller)

As per claim 1, Faller teaches:

transforming the side signal by a predetermined transformation into a set of transformations parameters, said parameters being adapted for reproducing a third signal corresponding to the side signal and having said properties of the side signal, (Faller, Page 2, Faller discusses Sum/Difference encoding which produces a main and a side signal. Faller goes on in section 2 to describe that "Many stereo or multi-channel audio signals are mono compatible...", where Fig. 3 indicates that the mono signal is encoded for the summation of the channels along with the binaural cue (BCC) encoder for the channels. Therefore, it would have been obvious to someone of ordinary skill in the art at the time of the invention that Sum/Difference encoding could have been applied prior to BCC encoding such that the mono signal is generated by the summation

Art Unit: 2626

of the channels as indicated by Faller and the BCC encoder only encodes the difference thereby reducing the bitrate.)

representing the multichannel signal at least by said main signal and said transformation parameters. (Faller, Page 2, Audio Bitstream and BCC Bitstream)

As per claim 2, claim 1 is incorporated and Faller teaches:

generating a set of transformation parameters from the main and the side signal, where said transformation parameters define the relationship between the spectra of the main and the side signal. (Faller, Fig. 3 (BCC encoder), Fig. 5 and section 3.1, the spectra is related between the main and the side signal such that the spatial spectral information can be reconstructed and synthesized at the output. This is in the BCC bitstream.)

As per claim 6, claim 1 is incorporated and Faller teaches:

transforming the side signal into a set of transformation parameters is performed on overlapping segments of at least the side signal and by determining transformation parameters corresponding to each segment. (Faller, Fig. 5, Section 3)

Claim 7 is rejected for being the decoder to the encoder of claim 1 and having reverse limitations shown by Faller Fig. 4.

Art Unit: 2626

Claims 13, 14, and 17 are rejected for similar reasons to claim 1 for having parallel limitations. Faller, abstract, further teaches a device and arrangement because "existing mono broadcasting or communications systems can be upgraded with BCC..." The existing systems provide a hardware implementation of the method of claim 1.

13. Claim 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable by Faller et al. (NPL document "Binaural Cue Coding Applied to Stereo and Multi-Channel Audio Compression" hereinafter Faller) in view of Geiger et al. (NPL document "Audio coding based on Integer Transforms" hereinafter Geiger).

As per claim 3, claim 2 is incorporated and Faller teaches:

determining the energy of the side signal (Faller, Page 3, inter-channel level difference (ICLD) teaches a comparison between the energies of the signals.)

Faller fails to teach, but Geiger teaches:

performing linear prediction on both said main signal and said side signal resulting in two sets of prediction coefficients, a first set comprising coefficients corresponding to the main signal and a second set comprising coefficients corresponding to the side signal, (Faller provides the main and side signals and Geiger further states that joint stereo coding is possible with linear prediction. Pages 7-8, sections "Linear Prediction in Frequency Domain" and "Joint Stereo Coding".)

Art Unit: 2626

said transformation parameters comprising said prediction coefficients and said determined energy. (Faller teaches that the BCC information contains the ICLD (energy) information (Faller, Page 3). It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the prediction coefficients as transformation parameters to use the coefficients to avoid pre-echo (Page 8, column 1).)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Geiger with the Faller device to use linear prediction coefficients as transformation parameters to exploit the flatness of transients by applying the linear prediction in the frequency domain to increase coding gain. (Page 8, column 1)

As per claim 4, claim 2 is incorporated and Faller teaches or suggests:

determining the amplitude spectra of the main and the side signal,
(Faller, Page 3, inter-channel level difference (ICLD) teaches a comparison between the amplitudes of the signals.)

determining the ratios between the determined amplitude spectras of the main and the side signal, (Faller, Page 3, the inter-channel level difference (ICLD) would suggest that a ratio could have been taken from the difference information.)

determining the energy of the side signal, (Faller, Page 3, inter-channel level difference (ICLD) teaches a comparison between the energies of the signals.)

Art Unit: 2626

Faller fails to teach, but Geiger teaches:

generating prediction coefficients by using information based on the determined ratios as input to a prediction system, (Faller suggests the use of ratios above. Geiger teaches the generation of prediction coefficients in joint stereo coding is possible with linear prediction. Pages 7-8, sections "Linear Prediction in Frequency Domain" and "Joint Stereo Coding".)

said transformation parameters comprising said prediction coefficients and said determined energy. (Faller teaches that the BCC information contains the ICLD (energy) information (Faller, Page 3). It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the prediction coefficients as transformation parameters to use the coefficients to avoid pre-echo (Page 8, column 1).)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Geiger with the Faller device to use linear prediction coefficients as transformation parameters to exploit the flatness of transients by applying the linear prediction in the frequency domain to increase coding gain. (Page 8, column 1)

As per claim 5, claim 2 is incorporated and Faller fails to fully teach, but Geiger teaches:

performing linear prediction on the side signal resulting in a set of prediction coefficients comprising coefficients corresponding to the side signal,

Art Unit: 2626

(Faller provides the main and side signals and Geiger further states that joint stereo coding is possible with linear prediction. Pages 7-8, sections "Linear Prediction in Frequency Domain" and "Joint Stereo Coding".)

determining the temporal envelope for the side signal, (Geiger, Page 8, ...*Temporal Noise Shaping (TNS)*...)

said transformation parameters comprising said prediction coefficients and said determined temporal envelope. (It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the prediction coefficients as transformation parameters to use the coefficients and the temporal envelope information to avoid pre-echo (Page 8, column 1).)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Geiger with the Faller device to use linear prediction coefficients as transformation parameters to exploit the flatness of transients by applying the linear prediction in the frequency domain to increase coding gain. (Page 8, column 1)

As per claims 15-16, Faller and Geiger encode a signal, therefore there is a data signal being encoded by a method of encoding according to claims 1-6. Furthermore, it would have been obvious to someone of ordinary skill in the art that Faller and Geiger operate on systems with hardware where it is inherent that a memory is needed in hardware to derive the encoded signal.

Art Unit: 2626

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable by Faller et al. (NPL document "Binaural Cue Coding Applied to Stereo and Multi-Channel Audio Compression" hereinafter Faller) in view of Faller et al. (NPL document "Efficient Representation of Spatial Audio using Perceptual Parameterization" hereinafter Faller2)

As per claim 12, claim 7 is incorporated and Faller fails to teach, but Faller2 teaches:

when the transformation parameters has been generated corresponding to specific segments, then the step of generating the third signal having the same properties as the side is performed by initially interpolating transformation parameters between the specific segments (Baumgarte, section 2.2, ...*The spatial cues which are applied to each spectral coefficient are obtained by interpolation over frequency of the spatial cues between the center frequencies of adjacent critical bands...*)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Faller2 with the Faller method because it is operating on the same cue coding and the spatial cues are represented in the side information.

Therefore, it would have been obvious that the interpolation of the spatial cues would be represented in the side information and thus a third signal representing the side information.

Allowable Subject Matter

15. Claim 8-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

17. As per claim 8, the closest known prior art (Faller, Geiger) fails to teach or fairly suggest alone or in reasonable combination:

generating a white noise sequence; generating a first signal by filtering the white noise sequence in a linear prediction filter defined by the prediction coefficient corresponding to the side signal, said prediction coefficients comprised in the received transformation parameters; attenuating the second signal until the energy of the second signal corresponds to the determined energy of the side signal, said determined energy being comprised in said received transformation parameters.

Faller and Geiger teach the separation of signals between a main and a side signal as well as prediction filters applied to the side information, however they fail to teach the application of a white noise sequence, filtering the sequence, and matching the energy of the second signal to the side signal energy as required by the claim language above.

18. As per claim 9, the closest known prior art (Faller, Geiger) fails to teach or fairly suggest alone or in reasonable combination:

Art Unit: 2626

generating a temporal signal in which the spectral energy relation between the temporal signal and the main signal corresponds to the spectral energy relation between the main signal and the side signal, said temporal signal being generated by filtering the main signal using the transformation parameters as filter parameters; filtering the temporal signal ensuring that the output signal is psycho acoustically uncorrelated with the main signal.

Faller and Geiger teach the separation of signals between a main and a side signal as well as prediction filters applied to the side information, however they fail to teach the generation of a temporal signal which has a spectral energy relation that corresponds to the side signal and is further filtered to be psycho acoustically uncorrelated with the main signal.

19. Claims 10-11 are considered allowable subject matter for being dependent and further limiting upon claim 9.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to PTO-892, Notice of References Cited for a listing of analogous art.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG A. BORSETTI whose telephone number is (571)270-3885. The examiner can normally be reached on Monday - Thursday (8am - 5pm Eastern Time).

Art Unit: 2626

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHEMOND DORVIL can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Greg A. Borsetti/
Examiner, Art Unit 2626

/Talivaldis Ivars Smits/
Primary Examiner, Art Unit 2626

12/24/2008